



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants: Mark C. Duhon et al.

§ Group Art Unit: 3672

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For: Expandable Elements

§ Atty. Dkt. No.: 22.1397 (SHL.0102US)

**Mail Stop Appeal Brief-Patents**

Commissioner for Patents

P.O. Box 1450

Alexandria, VA 22313-1450

**APPEAL BRIEF PURSUANT TO 37 C.F.R § 41.37**  
**AND REINSTATEMENT OF APPEAL**

Sir:

The final rejection of claims 2, 3, 5-11, 27-33, and 35-49 is hereby appealed.

**I. REAL PARTY IN INTEREST**

The real party in interest is Schlumberger Technology Corporation.

**II. RELATED APPEALS AND INTERFERENCES**

None.

Date of Deposit:

*September 28, 2006*

I hereby certify under 37 CFR 1.8(a) that this correspondence is being deposited with the United States Postal Service as **first class mail** with sufficient postage on the date indicated above and is addressed to the Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313.

*Ginger Yount*  
Ginger Yount

### **III. STATUS OF THE CLAIMS**

Claims 2, 3, 5-11, 27-33, and 35-49 (see Appendix of Claims) have been finally rejected and are the subject of this appeal.

Claim 34 has been allowed.

Claims 1, 4, and 12-26 have been cancelled.

### **IV. STATUS OF AMENDMENTS**

No amendments have been submitted after final rejection.

### **V. SUMMARY OF THE CLAIMED SUBJECT MATTER**

The following provides a concise explanation of the subject matter defined in each of the independent claims involved in the appeal, referring to the specification by page and line number and to the drawings by reference characters, as required by 37 C.F.R. § 41.37(c)(1)(v). Each element of the claims is identified by a corresponding reference to the specification and drawings where applicable. Note that the citation to passages in the specification and drawings for each claim element does not imply that the limitations from the specification and drawings should be read into the corresponding claim element.

Independent claim 2 recites an apparatus for use in a wellbore, comprising:

an element (Fig. 1:14; Fig. 8:314) formed of a superplastic material (Specification, p. 3:28-4:15; p. 7:22-8:5) to perform a predetermined downhole task (Specification, p. 4:16-18; p. 9:6-8); and

a component including a seal (Fig. 1:42; Fig. 8:304) engageable with the element (Specification, p. 6:1-20; p. 9:4-8, 20-23).

Independent claim 3 recites an apparatus for use in a wellbore, comprising:

an element (Fig. 8:312) formed of a superplastic material (Specification, p. 3:28-4:15; p. 7:22-8:5) to perform a predetermined downhole task (Specification, p. 9:6-8); and

a component including an anchor (Fig. 8:302) actuatable by the element (Specification, p. 9:4-8, 20-23).

Independent claim 5 recites an apparatus for use in a wellbore, comprising:

an element (Fig. 10:502) formed of a superplastic material (Specification, p. 3:28-4:15; p. 7:22-8:5) to perform a predetermined downhole task,

wherein the element includes a sand screen (Fig. 10:502; Specification, p. 11:22-30).

Independent claim 6 recites an apparatus for use in a wellbore, comprising:

an element formed of a superplastic material (Specification, p. 3:28-4:15; p. 7:22-8:5) to perform a predetermined downhole task; and

a shock absorber (Fig. 12:702) including the element (Specification p. 12:25-13:11).

Independent claim 7 recites an apparatus for use in a wellbore, comprising:

an element formed of a superplastic material (Specification, p. 3:28-4:15; p. 7:22-8:5) to perform a predetermined downhole task; and

a releasable connector mechanism (Fig. 13:800) including the element (Specification, p. 13:12-24).

Independent claim 8 recites an apparatus for use in a wellbore, comprising:

an element (Fig. 15:1002) formed of a superplastic material (Specification, p. 3:28-4:15; p. 7:22-8:5) to perform a predetermined downhole task (Specification, p. 14:15-21); and

an explosive component (Fig. 15:1000) including the element (Specification, p. 14:15-21).

Independent claim 10 recites an apparatus for use in a wellbore, comprising:

an element formed of a superplastic material (Specification, p. 3:28-4:15; p. 7:22-8:5) to perform a predetermined downhole task; and

a weak point connector (Fig. 16:1104) including the element (Specification, p. 14:22-p. 15:10).

Independent claim 11 recites an apparatus for use in a wellbore, comprising:

an element formed of a superplastic material (Specification, p. 3:28-4:15; p. 7:22-8:5) to perform a predetermined downhole task; and

a heating device (Figs. 1:28, 5:210, 8:322, 9:406, 10:508, 11:612, 12:710, 13:810, 14:902, 15:1004, 16:1107) to heat the element to a temperature sufficient to cause the element to exhibit superplastic behavior (Specification, p. 5:23-p. 6:20; p. 8:17-23; p. 9:15-23; p. 11:2-7; p. 11:25-30; p. 12:16-24; p. 13:6-11; p. 14:8-14; p. 14:17-21; p. 15:5-10).

Independent claim 37 recites an apparatus for use in a wellbore, comprising:

an element formed of a superplastic material (Specification, p. 3:28-4:15; p. 7:22-8:5) to perform a predetermined downhole task,

wherein the element is selected from the group consisting of a casing (Fig. 9:402), a liner (Fig. 9:402), a tubing (Specification, p. 11:9-11), and a pipe (Specification, p. 11:9-11); and

a heating device (Fig. 9:406) to heat the element to a temperature such that the element exhibits superplastic behavior (Specification, p. 11:1-16).

Independent claim 40 recites an apparatus for use in a wellbore, comprising:

an element (Fig. 5:212) formed of a superplastic material (Specification, p. 3:28-4:15; p. 7:22-8:5) to perform a predetermined downhole task (Specification, p. 8:15-23); and

a fishing tool (Figs. 5-7: 202, 204, 206, 208, 210, 212, 220) for a downhole conduit structure (Figs. 5-7:200), the fishing tool comprising the element (Specification, p. 8:15-27).

Independent claim 42 recites an apparatus for use in wellbore, comprising:

an element (Fig. 11:602) formed of a superplastic material (Specification, p. 3:28-4:15; p. 7:22-8:5) to perform a predetermined downhole task;

a junction seal assembly (Fig. 11:600) comprising the element (Specification, 12:5-15); and

a heating device (Fig. 11:612) to heat the element to a temperature such that the element exhibits superplasticity (Specification, p. 12:15-24).

## **VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL**

- A. Claims 2, 3, 27-29, 35, 36, and 44-49 Were Rejected Under 35 U.S.C. § 102 Over U.S. Patent No. 5,941,313 (Arizmendi).**
- B. Claim 5 Was Rejected Under 35 U.S.C. § 102 Over U.S. Patent No. 3,712,376 (Owen), Or in the Alternative, Under § 103 Over Owen in View of U.S. Patent No. 6,056,835 (Miyake).**
- C. Claim 6 Was Rejected Under 35 U.S.C. § 102 Over U.S. Patent No. 5,131,470 (Miszewski), Or in the Alternative, Under § 103 Over Miszewski in view of Miyake.**
- D. Claim 7 Was Rejected Under 35 U.S.C. § 102 Over U.S. Patent No. 4,122,899 (Brieger), Or in the Alternative, Under § 103 Over Brieger In View of Miyake.**
- E. Claim 7 Was Rejected Under 35 U.S.C. § 102 Over U.S. Patent No. 6,454,001 (Thompson), Or in the Alternative, Under § 103 Over Thompson in view of Miyake.**
- F. Claims 8 and 9 Were Rejected Under 35 U.S.C. § 102 Over U.S. Patent No. 4,042,019 (Henning), Or in the Alternative, Under § 103 Over Henning in View of Miyake.**
- G. Claims 10, 11, 37, and 39 Were Rejected Under 35 U.S.C. § 102 Over U.S. Patent No. 4,081,031 (Mohaupt), Or in the Alternative, Under § 103 Over Mohaupt in View of Miyake.**
- H. Claims 30-32 Were Rejected Under 35 U.S.C. § 103 Over Arizmendi in View of Mohaupt.**
- I. Claim 33 Was Rejected Under 35 U.S.C. § 103 Over Arizmendi in View of U.S. Patent No. 6,474,414 (Gonzalez).**
- J. Claim 38 Was Rejected Under 35 U.S.C. § 103 Over Owen in View of Mohaupt.**
- K. Claim 38 Was Rejected Under 35 U.S.C. § 103 Over Owen in View of Miyake and Mohaupt.**
- L. Claims 40 and 41 Were Rejected Under 35 U.S.C. § 103 Over U.S. Patent No. 3,380,528 (Timmons) in View of U.S. Patent No. 3,713,486 (Meitzen).**

- M. Claims 40 and 41 Were Rejected Under 35 U.S.C. § 103 Over Timmons in View of Meitzen and Miyake.**
- N. Claims 42 and 43 Were Rejected Under 35 U.S.C. § 103 Over U.S. Patent No. 6,056,059 (Ohmer) in View of Mohaupt.**

## **VII. ARGUMENT**

- A. Claims 2, 3, 27-29, 35, 36, and 44-49 Were Rejected Under 35 U.S.C. § 102 Over U.S. Patent No. 5,941,313 (Arizmendi).**

- 1. Claims 2, 3, 27-29, 35, and 36.**

Independent claim 2 was finally rejected as being anticipated by Arizmendi. Appellant respectfully disagrees with the assertion by the Examiner that Arizmendi discloses an apparatus comprising an element formed of a superplastic material. 4/26/2006 Office Action at 2. Arizmendi describes a sheath body 22 that is a relatively thin-walled tubular member formed from stainless steel, titanium, or other material having sufficient strength and elasticity to bend without fracturing. Arizmendi, 4:29-33. However, the fact that a sheath body is elastic to enable it to bend without fracturing does not make it superplastic. A material does not automatically become superplastic – the material has to be processed in a specific manner to achieve superplasticity. For example, as taught by Miyake, one of the references cited by the Examiner, there are several alternative techniques for making a material superplastic.<sup>1</sup> See Miyake, 1:13-64, 7:19-10:57. There is absolutely no teaching whatsoever within Arizmendi that special processing is performed on the various materials for the sheath body 22 to make the material superplastic.

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<sup>1</sup> The specification of the present application also describes characteristics of a superplastic material. Specification, p. 3:23-4:15; 7:22-8:5).

The Examiner responded to the above argument by asserting that “applicant does not claim a specific process by which a material can be made superplastic nor does the specification provide any basis for this argument.” 4/26/2006 Office Action at 3. It is true that claim 1 does not claim a process of making a material superplastic – however, that point does not change the fact that Arizmendi still fails to disclose a *superplastic* material. The titanium or other material of Arizmendi identified by the Office Action is *not* a superplastic material. Arizmendi does not teach that the stainless steel, titanium, or other material is superplastic. In fact, Arizmendi provides absolutely no indication that the stainless steel, titanium, or other material exhibits any characteristics that would indicate superplasticity.

To support the rejection, the Examiner pointed (see 4/26/2006 Office Action at 13) to the teachings of the specification on page 3, starting at line 28, that lists various materials that can constitute a superplastic material. However, the Examiner appears to have ignored the further teaching in the specification of the present application on page 7, starting at line 20 through page 8, line 5, that teaches the process by which a conventional material is converted into a superplastic material. Therefore, since Arizmendi teaches the use of titanium, stainless steel, or other material in their normal state, Arizmendi does not disclose an element formed of a superplastic material to perform a predetermined downhole task, in combination with a component including a seal engageable with the element.

The Examiner also cited Werner (U.S. Patent No. 6,464,019) as purportedly supporting the rejection. *See, i.d.* Specifically, the Examiner cited column 5, line 59-column 6, line 27, of Werner. Werner lists several materials that can be used as superplastic materials – however, Werner does not provide any teaching that contradicts Appellant’s discussion on page 7 of the Specification of the present application that a material has to be *converted* from its normal state

to the superplastic state before it can become a superplastic material. Moreover, Werner has a § 102(e) date of November 8, 2000, and is therefore *not* prior art with respect to the present invention, which claims priority to a Provisional Application filed June 1, 2000.

With respect to independent claim 3, Arizmendi also does not disclose the combination of an element formed of a *superplastic* material to perform a predetermined downhole task, and a component including an anchor actuatable by the element.

For the foregoing reasons, it is respectfully requested that the final rejection of the above claims be reversed.

## **2. Claims 44-49.**

Claims 44-49 depend from independent claim 2 or 3, and thus are allowable for at least the same reasons as corresponding claims 2 and 3.

Moreover, with respect to dependent claims 44-49, some characteristics of a superplastic material are expressly recited to further distinguish the teachings of Arizmendi. There clearly is absolutely no teaching in Arizmendi that any of its materials exhibit the characteristics expressly recited in claims 44-49. The Examiner stated that the recited features of claims 44-49 are inherent properties of the materials listed in Arizmendi. 4/26/2006 Office Action at 3. “To establish inherency, the extrinsic evidence ‘must make clear that the missing descriptive matter is *necessarily* present in the thing described in the reference, and that it would be so recognized by persons of ordinary skill.’” M.P.E.P. § 2112 (8<sup>th</sup> ed., Rev. 5), at 2100-47 (emphasis added). The materials described in Arizmendi do not *necessarily* have to have the characteristics recited in claims 44-49. The titanium, stainless steel, or other material listed in Arizmendi would *not* have the recited characteristics if special processing were not performed to make the materials



superplastic. Therefore, the titanium, stainless steel, or other materials taught in Arizmendi do not necessarily have superplastic characteristics.

The Examiner acknowledged that Arizmendi does not “specifically teach the properties recited in claims 44-49,” but then asserted that such properties are inherently taught by Arizmendi. The Examiner failed to provide any rationale regarding why the materials listed in Arizmendi must *necessarily* be superplastic. In fact, a person of ordinary skill in the art would more likely understand that the listed materials of Arizmendi behave in their normal state, not the superplastic state, as there exists absolutely no hint whatsoever that the materials of Arizmendi have superplastic characteristics.

The rejection based on inherency is therefore improper.

The final rejection of the above claims should be reversed for these additional reasons.

**B. Claim 5 Was Rejected Under 35 U.S.C. § 102 Over U.S. Patent No. 3,712,376 (Owen), Or in the Alternative, Under § 103 Over Owen in View of U.S. Patent No. 6,056,835 (Miyake).**

**1. Claim 5.**

In the 4/26/2006 Office Action, the Examiner added an alternative rejection of claim 5 – namely, rejecting claim 5 as being anticipated by Owen based on inherency. The Examiner stated that Owen discloses an element formed of aluminum, “which is inherently a superplastic material as defined by applicant in the instant application (beginning on page 3, line 28).” 4/26/2006 Office Action at 3. As discussed above, page 3 of the present Specification refers to example materials that can be superplastic materials. That listing, however, must be read in the context of the remainder of the Specification (more specifically, page 7 of the Specification), which explicitly states that a material must be specially processed to achieve superplastic characteristics. The present Specification does not define aluminum as necessarily having

superplastic characteristics. In fact, without the special processing, a person of ordinary skill in the art would understand that aluminum does not possess superplastic characteristics. Therefore, the anticipation rejection based on inherency is incorrect, as the Examiner has failed to explain why the aluminum used in Owen would necessarily have superplastic characteristics. Owen provides no hint that its aluminum liner possesses any superplastic characteristics. In fact, the rejection of claim 5 itself contradicts the assertion of inherency, since the Examiner specifically conceded that Owen fails to disclose that the aluminum of Owen is a superplastic material. If the aluminum can possess an alternative state (*i.e.*, its normal state which is not a superplastic state), then clearly a person of ordinary skill in the art would not understand that the aluminum liner necessarily possesses superplastic characteristics. In view of the foregoing, the anticipation rejection based on inherency is clearly incorrect.

Independent claim 5 was rejected in the alternative as being obvious over Owen and Miyake. A *prima facie* case of obviousness of independent claim 5 has not been established over Owen and Miyake for at least the reason that no motivation or suggestion existed to combine the teachings of Owen and Miyake. M.P.E.P. § 2143 (8<sup>th</sup> ed., Rev. 5), at 2100-126. Although Owen describes a liner that can be used as a sand screen, Owen makes no suggestion whatsoever of using a superplastic material in its sand screen (a point conceded by the Examiner; see 4/26/2006 Office Action at 3). Miyake describes a superplastic material, but there is no suggestion anywhere within Miyake of using its superplastic material to form an element that is part of a sand screen. The Examiner did not cite to any other knowledge that would have been possessed by persons of ordinary skill in the art to provide the necessary motivation or suggestion to combine the reference teachings.

The Examiner stated that it would have been obvious to have modified Owen to be made from a superplastic material as taught by Miyake “in order to have formed the element from the material that was capable of being subjected to expanding without failure (1:5-10).” 4/26/2006 Office Action at 4. Further, the Office Action stated that “[o]ne would have been motivated to make such a combination because an element that was more versatile and less prone to failure would have been obtained, as taught by Miyake et al. (36:1-20).” *Id.* The problem with using the above stated motivations to modify Owen based on Miyake is that neither Owen nor Miyake suggests these motivations. The Examiner has also failed to cite to any specific knowledge of a person of ordinary skill in the art that would have supplied the above stated motivations. The benefits of using a superplastic material in a sand screen is suggested in only the disclosure of the present invention. By relying upon the disclosure of the present invention to find benefits that are then used as the motivation to combine prior art reference teachings, the Examiner has engaged in the use of impermissible hindsight to piece together un-related elements of prior art references. *See In re Fritch*, 972 F.2d 1260, 1266, 23 U.S.P.Q.2d 1780 (Fed. Cir. 1992) (holding that “one cannot use hindsight reconstruction to pick and choose among isolated disclosures in the prior art to deprecate the claimed invention.”). In other words, the objective evidence establish that there was no suggestion or motivation to modify Owen based on Miyake.

It is well established law that “[t]he mere fact that the prior art could be so modified would not have made the modification **obvious** unless the prior art suggested the **desirability** of the modification.” *In re Gordon*, 733 F.2d 900, 902, 221 U.S.P.Q. 1125 (Fed. Cir. 1984) (emphasis added). As the Federal Circuit has stated, “virtually all [inventions] are combinations of old elements.” *In re Rouffet*, 149 F.3d 1350, 1357, 47 U.S.P.Q.2d 1453 (Fed. Cir. 1998). “Most, if not all, inventions are combinations and mostly of old elements.” *Id.*

Therefore an examiner may often find every element of a claimed invention in the prior art. If identification of each claimed element in the prior art were sufficient to negate patentability, very few patents would ever issue. Furthermore, rejecting patents solely by finding prior art corollaries for the claimed elements would permit an examiner to use the claimed invention itself as a blueprint for piecing together elements in the prior art to defeat the patentability of the claimed invention. Such an approach would be ‘an illogical and inappropriate process by which to determine patentability.’

*Id.*

Owen provides no suggestion whatsoever of any desirability to modify its liner to incorporate a superplastic material. Miyake provides no suggestion whatsoever that its superplastic material can form an element that is part of a sand screen.

As another apparent basis for the obviousness rejection, the Examiner argued that “the sand screen of Owen is described as being formed of aluminum, which has been defined by applicant as a superplastic material.” 4/26/2006 Office Action at 14. This statement is factually incorrect, and is in fact inconsistent with the earlier statement on page 3 of the Office Action where the Examiner conceded that Owen does not disclose a sand screen formed from a superplastic material. As taught by Miyake itself, as well as by the specification of the present application, aluminum in its normal state is not a superplastic material, unless special processing is performed. The statement that aluminum is “defined” as a superplastic material is without support. It is unclear where such a definition that aluminum must be a superplastic material appears. Miyake does not provide such a definition.

Also, there clearly is no definition provided anywhere in the specification of the present application that *any* aluminum constitutes superplastic material. In fact, as specifically taught by the specification, special processing has to be performed to achieve a material having superplastic characteristics. This teaching of the specification is consistent with the teaching of Miyake itself. Thus, it is clear that the aluminum of Owen does not have superplastic

characteristics. Therefore, it is clear that no motivation or suggestion existed to modify the liner of Owen to incorporate the superplastic material of Miyake.

A person of ordinary skill in the art would not have been motivated to combine the teachings of Owen and Miyake to achieve the claimed invention based on the teachings of Owen and Miyake. A *prima facie* case of obviousness has therefore not been established with respect to claim 5.

For the foregoing reasons, the final rejections of claim 5 should be reversed.

**C. Claim 6 Was Rejected Under 35 U.S.C. § 102 Over U.S. Patent No. 5,131,470 (Miszewski), Or in the Alternative, Under § 103 Over Miszewski in view of Miyake.**

**1. Claim 6.**

In the 4/26/2006 Office Action, the Examiner added an anticipation rejection of claim 6 over Miszewski based on inherency. The Examiner stated that Miszewski discloses a wellbore shock absorber that includes aluminum elements, which the Examiner asserted “is inherently a superplastic material.” 4/26/2006 Office Action at 4. As with the inherency rejections presented above with respect to independent claims 2, 3, and 5, no rationale or objective evidence was provided by the Examiner regarding why the aluminum shock absorber of Miszewski would *necessarily* be a superplastic material. In fact, Miszewski provides absolutely no hint that its aluminum shock absorber possesses any characteristics that would be indicative of superplasticity. The Examiner has cited to no evidence in Miszewski that would have led a person of ordinary skill in the art to recognize that the aluminum shock absorber would necessarily be a superplastic material. In fact, the rejections of claim 6 based on anticipation and obviousness are contradictory to each other. The Examiner concedes that Miszewski fails to disclose that aluminum is a superplastic material – this directly contradicts the Examiner’s

assertion that the aluminum elements of the shock absorber in Miszewski are inherently a superplastic material. Therefore, the anticipation rejection of claim 6 based on inherency is clearly improper.

Independent claim 6 was alternatively rejected as being obvious over Miszewski in view of Miyake. Claim 6 recites an apparatus for use in the wellbore that comprises an element formed of a superplastic material to perform a predetermined downhole task, and a shock absorber that includes such an element. The Examiner cited to the shock absorber disclosed in Miszewski, which includes damping coils made of aluminum or stainless steel. 4/26/2006 Office Action at 4. There is no teaching or suggestion that the aluminum damping coils in the shock absorber of Miszewski have a superplastic material. The Examiner cited Miyake as teaching the modification of the aluminum damping coils of the shock absorber in Miszewski into superplastic damping coils.

However, there did not exist any motivation or suggestion to combine the teachings of Miszewski and Miyake. There is no indication whatsoever in Miszewski that its shock absorber would benefit from including an element formed of a superplastic material. Miszewski does teach that its shock absorber has damping coils made of aluminum. However, aluminum is not a superplastic material unless it is specially processed to become a superplastic material. The reading of any aluminum as being a superplastic material is clearly erroneous. Miyake also does not teach that any aluminum is a superplastic material. Miyake teaches that aluminum has to be specially processed to become a superplastic material. However, except for the teachings of the disclosure of the present invention, there was no other teaching or suggestion of any desirability to incorporate a superplastic material into the shock absorber of Miszewski. In view of the

foregoing, it is respectfully submitted that a *prima facie* case of obviousness has not been established with respect to claim 6.

Reversal of the final rejections of claim 6 is respectfully requested.

**D. Claim 7 Was Rejected Under 35 U.S.C. § 102 Over U.S. Patent No. 4,122,899 (Brieger), Or in the Alternative, Under § 103 Over Brieger In View of Miyake.**

**1. Claim 7.**

Claim 7 was also rejected as being anticipated by Brieger based on the theory of inherency. The Examiner stated that Brieger discloses an apparatus having an element formed from aluminum, “which is inherently a superplastic material ....” 4/26/2006 Office Action at 5. Again, as with the previous inherency rejections, the Examiner has provided no objective evidence or rationale regarding why the aluminum in Brieger would *necessarily* be a superplastic material. There appears absolutely no suggestion in Brieger of any hint that the characteristics of the aluminum in Brieger would necessarily be superplastic. In fact, the Examiner specifically conceded that the aluminum of Brieger is not a superplastic material, which directly contradicts the assertion of inherency. Therefore, in view of the foregoing, the anticipation rejection of claim 7 over Brieger is improper.

Independent claim 7 was alternatively rejected as being obvious over Brieger in view of Miyake. The obviousness rejection of independent claim 7 over Brieger and Miyake is defective. Although Brieger describes a shear pin, Brieger makes no mention whatsoever of using a superplastic material in its shear pin. The Examiner cited to the fact that Brieger discloses that its shear pin can be made of aluminum, and thus, that would be suggestive of a superplastic material. That is clearly not the case, as the presence of aluminum does not

automatically suggest a superplastic material. Therefore, a *prima facie* case of obviousness has not been established against claim 7 over either Brieger and Miyake.

The final rejections of claim 7 should therefore be reversed.

**E. Claim 7 Was Rejected Under 35 U.S.C. § 102 Over U.S. Patent No. 6,454,001 (Thompson), Or in the Alternative, Under § 103 Over Thompson in view of Miyake.**

The Examiner also rejected claim 7 as being anticipated by Thompson based on the theory of inherency. The Examiner stated that Thompson discloses an apparatus that includes an element formed of aluminum, “which is inherently a superplastic material ....” 4/26/2006 Office Action at 5. This rejection is improper as Thompson provides no hint that the aluminum in its apparatus would necessarily possess superplastic characteristics. In fact, the Examiner specifically conceded that Thompson fails to disclose that the aluminum in Thompson is a superplastic material – this directly contradicts the inherency argument made by the Examiner. In view of the foregoing, the anticipation rejection of claim 7 over Thompson based on inherency is improper.

Claim 7 was alternatively rejected as being obvious over Thompson in view of Miyake. The obviousness rejection of claim 7 over Thompson and Miyake is defective. Although Thompson describes a shear sub, Thompson makes no mention whatsoever of using a superplastic material in its shear sub.

Miyake describes a superplastic material, but there is absolutely no suggestion anywhere within Miyake of using its superplastic material to form an element that is part of a releasable connector mechanism. The Examiner does not cite to any other knowledge that would have been possessed by persons of ordinary skill in the art to provide the necessary motivation or suggestion to combine the reference teachings.



The Examiner cited to the fact that Thompson discloses that its shear pins can be made of aluminum, and thus, that would be suggestive of a superplastic material. That is clearly not the case as the presence of aluminum does not automatically suggest a superplastic material. Therefore, a *prima facie* case of obviousness has not been established against claim 7 over Thompson and Miyake.

The final rejections of claim 7 should therefore be reversed.

**F. Claims 8 and 9 Were Rejected Under 35 U.S.C. § 102 Over U.S. Patent No. 4,042,019 (Henning), Or in the Alternative, Under § 103 Over Henning in View of Miyake.**

**1. Claims 8 and 9.**

Independent claim 8 was rejected as being anticipated by Henning based on the theory of inherency. The Examiner stated that Henning discloses an apparatus including an element formed from aluminum, “which is inherently a superplastic material.” 4/26/2006 Office Action at 6.

The Examiner provided no rationale or objective evidence that would indicate that the aluminum in Henning would necessarily be a superplastic material. In fact, Henning provides absolutely no suggestion of any desirability that the aluminum be a superplastic material. The Examiner specifically conceded that the aluminum of Henning is not a superplastic material – this directly contradicts the assertion that the aluminum of Henning is a superplastic material. Therefore, the anticipation rejection of claims 8 and 9 over Henning based on inherency is improper.

Independent claim 8 was alternatively rejected over the combination of Henning and Miyake. Similar rationale was provided by the Examiner to reject claim 8 over Henning and Miyake. The Examiner stated that Henning discloses an element formed of aluminum, and thus,

that would be the suggestion needed to combine Henning and Miyake to achieve the claimed combination of an explosive component including a superplastic element. 4/26/2006 Office Action at 6. As discussed above, such rationale is clearly erroneous. No motivation existed to combine the teachings of Henning and Miyake, since Henning does not suggest the desirability of incorporating an element formed of a superplastic material into Henning's explosive component, and Miyake does not suggest the desirability of using Miyake's superplastic materials in an explosive component. A *prima facie* case of obviousness has thus not been established with respect to claim 8 (or its dependent claim 9).

Reversal of the final rejections of the above claims is respectfully requested.

**G. Claims 10, 11, 37, and 39 Were Rejected Under 35 U.S.C. § 102 Over U.S. Patent No. 4,081,031 (Mohaupt), Or in the Alternative, Under § 103 Over Mohaupt in View of Miyake.**

**1. Claim 10.**

The Examiner also rejected claim 10 as being anticipated by Mohaupt based on inherency. Again, the rationale is that because Mohaupt discloses use of aluminum, then Mohaupt inherently teaches a superplastic material. 4/26/2006 Office Action at 7. Again, the Examiner has provided absolutely no rationale or objective evidence that would have established that the aluminum used in Mohaupt would *necessarily* have to be a superplastic material. In fact, the statement of inherency is contradicted by the concession by the Examiner that Mohaupt fails to disclose that its aluminum is a superplastic material. In view of the foregoing, the anticipation rejection of claim 10 based on inherency is clearly improper.

Independent claim 10 was alternatively rejected as being obvious over Mohaupt in view of Miyake. Claim 10 recites a weak point connector including an element formed of a superplastic material. The rationale for combining Mohaupt with Miyake is based on the fact

that Mohaupt discloses a housing 24 that is formed from aluminum. As explained above, this basis for combining a reference with Miyake is clearly erroneous. A *prima facie* case of obviousness has thus not been established with respect to claim 10.

Therefore, the final rejections of claim 10 should be reversed.

## **2. Claims 11, 37, and 39.**

Independent claims 11 and 37 were also rejected as being anticipated by Mohaupt based on inherency using the same arguments with respect to claim 10. As noted above, this anticipation rejection based on inherency is improper.

Claim 11 was also alternatively rejected as being obvious over Mohaupt and Miyake. Claim 11 recites an element formed of a superplastic material in combination with a heating device to heat the element to a temperature sufficient to cause the element to exhibit superplastic behavior. To support the obviousness rejection, the Examiner referred to the housing 24 formed of aluminum as disclosed in Mohaupt, stating that this aluminum is a superplastic material as taught by Miyake. 4/26/2006 Office Action at 7. It is respectfully submitted that no motivation or suggestion existed to combine the teachings of Mohaupt and Miyake, as it is clear that the housing 24 of Mohaupt, formed of aluminum, is *not* made of a superplastic material. There existed no suggestion of any desirability to incorporate a superplastic material into the housing 24 of Mohaupt, and Miyake does not disclose any suggestion of any desirability to use the superplastic material disclosed in Miyake in the arrangement of Mohaupt. Therefore, there would have been no need for a heating device to heat an element to a temperature sufficient to cause the element to exhibit superplastic behavior, as recited in claim 11. Since no motivation or suggestion existed to combine the teachings of Mohaupt with Miyake to achieve the claimed

invention, the *prima facie* case of obviousness against claim 11 (and its dependent claim 39) is defective.

Similarly, independent claim 37 is also non-obvious over Mohaupt and Miyake.

Reversal of the final rejection of the above claims is respectfully requested.

**H. Claims 30-32 Were Rejected Under 35 U.S.C. § 103 Over Arizmendi in View of Mohaupt.**

**1. Claims 30-32.**

Claim 30 depends from claim 2 and is thus allowable for at least the same reasons as claim 2.

Claim 30 was rejected as being obvious over Arizmendi and Mohaupt. The Examiner conceded that Arizmendi does not disclose a heating device to heat the superplastic material to a temperature such that the element exhibits superplastic behavior. 4/26/2006 Office Action at 8. However, the Examiner relied upon Mohaupt as teaching the heating device. *Id.* It is respectfully submitted that even if Arizmendi and Mohaupt can be combined, the hypothetical combination of Arizmendi and Mohaupt would not teach or suggest all elements of claim 30. Specifically, neither Arizmendi nor Mohaupt teaches or suggests a heating device to heat a superplastic material to a temperature such that the element exhibits superplastic behavior. Arizmendi has absolutely no need for such a heating device, because its sheath body 22 is not formed of a superplastic material and does not need to be heated to a temperature such that the sheath body 22 exhibits superplastic behavior. Mohaupt teaches the use of a chemical generator mixture 28 that is combusted to form a flame that traverses the walls of a housing 24, which can be made from aluminum tubing or a rigid, plastic or elastomeric material. The flame is designed to burst a rigid material, cause failure of the thinnest section of a plastic material, or to cause

swelling of an elastomeric material to cause fluids in the wellbore surrounding the system to be rapidly displaced outwardly through perforations in a well casing. Mohaupt, 4:1-19. There is absolute no basis to construe the chemical generator mixture 28 as a heating device to heat a superplastic material to a temperature such that the element exhibits superplastic behavior. The Mohaupt heat generator causes bursting, failure or swelling of a housing to cause rapid displacement of surrounding fluid. That teaching clearly does not provide any suggestion of heating a superplastic material such that it exhibits superplastic behavior.

The Examiner argued that “Mohaupt was used merely to teach that heating of a superplastic material, *i.e.* aluminum, in the wellbore and the specifics of the device taught by Mohaupt are not relevant to the rejection.” 4/26/2006 Office Action at 15. Ignoring specific teachings of Mohaupt to render the obviousness rejection is clearly improper. As specifically stated by the M.P.E.P., a prior art must be considered in its entirety. *See*, M.P.E.P. § 2141.03, at 2100-124. Therefore, the hypothetical combination of Arizmendi and Mohaupt, even if proper, fails to teach or suggest the subject matter of claim 30.

Moreover, there simply did not exist any motivation or suggestion to combine the teachings of Arizmendi and Mohaupt to achieve the claimed invention. As noted above, there simply did not exist any need whatsoever in Arizmendi of heating the sheath body 22 for the sheath body 22 to exhibit plastic behavior. Also, there is no reason to incorporate the teachings of Mohaupt that relate to bursting, swelling, or failing of a housing to displace fluids into the seal mechanism described in Arizmendi. For the foregoing reasons, a *prima facie* case of obviousness has not been established with respect to claim 30.

Therefore, the final rejection of claim 30 (and its dependent claims 31 and 32) should be reversed.

**I. Claim 33 Was Rejected Under 35 U.S.C. § 103 Over Arizmendi in View of U.S. Patent No. 6,474,414 (Gonzalez).**

**1. Claim 33.**

Claim 33 depends from claim 2 and is allowable for at least the same reasons as claim 2.

Claim 33 was rejected as being obvious over Arizmendi and Gonzalez. It is respectfully submitted that the hypothetical combination of Arizmendi and Gonzalez does not teach or suggest all elements of claim 33. Specifically, neither Arizmendi nor Gonzalez teaches an element (formed of a superplastic material) that comprises a plug to block fluid flow in a bore of the conduit. As conceded by the Examiner, Arizmendi does not disclose such an element that comprises the plug. 4/26/2006 Office Action at 8. Gonzalez also fails to disclose or suggest such an element, as Gonzalez teaches a molten metal plug that expands upon solidification to form a pressure-resistant seal in a tubular. In other words, the seal of Gonzalez is formed by *melting* a metal, with the seal formed after solidification of the molten metal. This is clearly different from an element formed of a *superplastic material* that comprises a plug to block fluid flow.

The Examiner pointed to the fact that the Specification of the present application discloses a plug that contains a portion that can be melted (see page 4, line 16) as being inconsistent with Appellant's arguments presented above. That is clearly not the case. Page 4 of the present Specification refers to an expandable plug 10 that includes a flowable element 12 and an expandable element 14. Specification, 4:16-17. The expandable element 14 is formed of a superplastic material, whereas the flowable element 12 can include a eutectic material, which can transition to a molten or liquid state. Appellant makes absolutely no claim that the eutectic material in the flowable element 12 is considered a superplastic material. It is the expandable element 14 that is formed of a superplastic material, where the expandable element cooperates

with the flowable element 12 to exhibit superplastic characteristics at about the same temperature as the flow temperature of the flowable element 12. Specification, 5:6-13. The passage in the Specification cited by the Examiner clearly is not inconsistent with Appellant's arguments that the teaching of Gonzalez does not suggest an element formed of a superplastic material.

Thus, as the hypothetical combination of Arizmendi and Gonzalez fails to teach or suggest all elements of claim 33, it is respectfully submitted that a *prima facie* case of obviousness has not been established with respect to claim 33.

Therefore, the final rejection of claim 33 should be reversed.

**J. Claim 38 Was Rejected Under 35 U.S.C. § 103 Over Owen in View of Mohaupt.**

Claim 38 depends from claim 5 and is thus allowable for at least the same reasons as claim 5.

Claim 38 was rejected as obvious over Owen and Mohaupt. The Examiner asserted that Owen discloses all the limitations of the claim "except for a heating device to heat the superplastic material to a temperature at which the element exhibits superplastic behavior." 4/26/2006 Office Action at 9. However, Owen also fails to disclose a superplastic material. This point was conceded by the Examiner on page 3 of the Office Action. Therefore, in view of the fact that neither Owen nor Mohaupt discloses or suggests use of a superplastic material, the hypothetical combination of Owen and Mohaupt clearly does not teach or suggest all elements of claim 38.

To the extent the Examiner is relying on the theory of inherency to assert that Owen discloses a superplastic material, Appellant points to the arguments presented above with respect to claim 5 regarding why such an assertion is incorrect.

In view of the foregoing, a *prima facie* case of obviousness has not been established with respect to claim 38 over Owen and Mohaupt. Reversal of the final rejection of the above claim is respectfully requested.

**K. Claim 38 Was Rejected Under 35 U.S.C. § 103 Over Owen in View of Miyake and Mohaupt.**

**1. Claim 38.**

Claim 38 was alternatively rejected as being obvious over Owen, Miyake, and Mohaupt. In view of the fact that the obviousness rejection of claim 5 over Owen and Miyake is defective, it is respectfully submitted that the rejection of claim 38 over Owen, Miyake, and Mohaupt is also defective.

Therefore, reversal of the final rejection of claim 38 is respectfully requested.

**L. Claims 40 and 41 Were Rejected Under 35 U.S.C. § 103 Over U.S. Patent No. 3,380,528 (Timmons) in View of U.S. Patent No. 3,713,486 (Meitzen).**

**1. Claims 40 and 41.**

Independent claim 40 was rejected as being obvious over Timmons and Meitzen. The rejection of claim 40 over Timmons and Meitzen is premised on the assertion that Meitzen inherently discloses a superplastic material. The Examiner asserted by Meitzen discloses slips that are formed from aluminum, “which is a known superplastic material.” 4/26/2006 Office Action at 10. This assertion is clearly incorrect, since Meitzen provides absolutely no teaching that its aluminum can be used as a superplastic material. The Examiner has cited to no objective evidence or rationale that would have indicated that the aluminum in Meitzen would necessarily be a superplastic material. Therefore, the Examiner has failed to establish that Meitzen would inherently include a superplastic material. The hypothetical combination of Timmons and



Meitzen therefore does not teach or suggest all elements of claim 40 (and its dependent claim 41).

Reversal of the final rejection of the above claims is respectfully requested.

**M. Claims 40 and 41 Were Rejected Under 35 U.S.C. § 103 Over U.S. Patent No. 3,380,528 (Timmons) in View of Meitzen and Miyake.**

**1. Claims 40 and 41.**

Independent claim 40 was alternatively rejected as being obvious over Timmons, Meitzen, and Miyake. The rationale underlying the rejection of claim 40 over Timmons, Meitzen, and Miyake is that Timmons discloses a fishing tool with an expandable element, Meitzen discloses anchoring devices with slips that include aluminum, which provided the hook to bring Miyake into the combination. The use of aluminum as the motivation to incorporate the teachings of Miyake into Timmons and Meitzen is clearly erroneous. A *prima facie* case of obviousness has thus not been established with respect to claim 40 (or its dependent claim 41).

Therefore, the final rejection of the above claims should be reversed.

**N. Claims 42 and 43 Were Rejected Under 35 U.S.C. § 103 Over U.S. Patent No. 6,056,059 (Ohmer) in View of Mohaupt.**

**1. Claims 42 and 43.**

Independent claim 42 was rejected as being obvious over Ohmer in view of Mohaupt. It is respectfully submitted that no motivation or suggestion existed to combine the teachings of Ohmer and Mohaupt. Ohmer teaches the use of a post-forming tool deployed into a branching sub to extend outlet members of the branching sub outwardly. The forming tool applies pressure to perform the deformation of the branching sub outlets. There is absolutely no indication of any desirability to incorporate the heating device of Mohaupt into the Ohmer system for the purpose

of heating an element formed of a superplastic material to a temperature such that the element exhibits superplasticity. Therefore, no motivation existed to combine the teachings of Ohmer and Mohaupt. A *prima facie* case of obviousness has not been established against claim 42 (or its dependent claim 43).

Reversal of the final rejection of the above claims is respectfully requested.

### VIII. CONCLUSION

In view of the foregoing, reversal of all final rejections and allowance of all pending claims is respectfully requested.

Respectfully submitted,

Date: \_\_\_\_\_

9-25, 2006



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## **APPENDIX OF APPEALED CLAIMS**

The claims on appeal are:

- 1           2.     An apparatus for use in a wellbore, comprising:  
2                 an element formed of a superplastic material to perform a predetermined  
3 downhole task; and  
4                 a component including a seal engageable with the element.
  
- 1           3.     An apparatus for use in a wellbore, comprising:  
2                 an element formed of a superplastic material to perform a predetermined  
3 downhole task; and  
4                 a component including an anchor actuable by the element.
  
- 1           5.     An apparatus for use in a wellbore, comprising:  
2                 an element formed of a superplastic material to perform a predetermined  
3 downhole task,  
4                 wherein the element includes a sand screen.
  
- 1           6.     An apparatus for use in a wellbore, comprising:  
2                 an element formed of a superplastic material to perform a predetermined  
3 downhole task; and  
4                 a shock absorber including the element.
  
- 1           7.     An apparatus for use in a wellbore, comprising:  
2                 an element formed of a superplastic material to perform a predetermined  
3 downhole task; and  
4                 a releasable connector mechanism including the element.

- 1           8.     An apparatus for use in a wellbore, comprising:  
2                 an element formed of a superplastic material to perform a predetermined  
3 downhole task; and  
4                 an explosive component including the element.
- 1           9.     The apparatus of claim 8, wherein the explosive component includes a shaped  
2 charge.
- 1           10.    An apparatus for use in a wellbore, comprising:  
2                 an element formed of a superplastic material to perform a predetermined  
3 downhole task; and  
4                 a weak point connector including the element.
- 1           11.    An apparatus for use in a wellbore, comprising:  
2                 an element formed of a superplastic material to perform a predetermined  
3 downhole task; and  
4                 a heating device to heat the element to a temperature sufficient to cause the  
5 element to exhibit superplastic behavior.
- 1           27.    The apparatus of claim 2, wherein the element is adapted to translate the seal into  
2 engagement with a downhole structure.
- 1           28.    The apparatus of claim 27, comprising a packer.
- 1           29.    The apparatus of claim 27, comprising a patch.
- 1           30.    The apparatus of claim 27, further comprising a heating device to heat the  
2 superplastic material to a temperature such that the element exhibits superplastic behavior.
- 1           31.    (Previously Presented) The apparatus of claim 30, further comprising a piston  
2 adapted to cause translation of the element.

1           32.     The apparatus of claim 30, wherein the heating device comprises a propellant.

1           33.     The apparatus of claim 2, further comprising a conduit, wherein the element  
2 comprises a plug to block fluid flow in a bore of the conduit.

1           35.     The apparatus of claim 3, wherein the component comprises a packer including  
2 the anchor.

1           36.     The apparatus of claim 35, wherein the packer further comprises a seal,  
2                   wherein the element comprises one or more sleeves attached to the anchor and the  
3 seal, the one or more sleeves adapted to translate the anchor and seal into engagement with a  
4 downhole structure.

1           37.     An apparatus for use in a wellbore, comprising:  
2                   an element formed of a superplastic material to perform a predetermined  
3 downhole task,  
4                   wherein the element is selected from the group consisting of a casing, a liner, a  
5 tubing, and a pipe; and  
6                   a heating device to heat the element to a temperature such that the element  
7 exhibits superplastic behavior.

1           38.     The apparatus of claim 5, further comprising a heating device to heat the sand  
2 screen to a temperature such that the sand screen exhibits superplastic behavior.

1           39.     The apparatus of claim 11, wherein the heating device comprises a propellant.

1           40.    An apparatus for use in a wellbore, comprising:  
2                    an element formed of a superplastic material to perform a predetermined  
3 downhole task; and  
4                    a fishing tool for a downhole conduit structure, the fishing tool comprising the  
5 element.

1           41.    The apparatus of claim 40, wherein the element is adapted to expand to engage an  
2 inner well of the conduit structure.

1           42.    An apparatus for use in a wellbore, comprising:  
2                    an element formed of a superplastic material to perform a predetermined  
3 downhole task;  
4                    a junction seal assembly comprising the element; and  
5                    a heating device to heat the element to a temperature such that the element  
6 exhibits superplasticity.

1           43.    The apparatus of claim 42, wherein the element comprises one of a tubing and  
2 pipe to be inserted into a lateral wellbore.

1           44.    The apparatus of claim 2, wherein the superplastic material exhibits elongation to  
2 failure in excess of 200%.

1           45.    The apparatus of claim 2, wherein the superplastic material has a fine equi-axed  
2 grain structure that remains stable during deformation.

1           46.    The apparatus of claim 45, wherein a grain size of the fine equi-axed grain  
2 structure is in a range of 2 to 10 micrometers.

1           47.    The apparatus of claim 3, wherein the superplastic material exhibits elongation to  
2 failure in excess of 200%.

1           48.    The apparatus of claim 3, wherein the superplastic material has a fine equi-axed  
2 grain structure that remains stable during formation.

1           49.    The apparatus of claim 48, wherein a grain size of the fine equi-axed grain  
2 structure is in a range of 2 to 10 micrometers.

**EVIDENCE APPENDIX**

None.



**RELATED PROCEEDINGS APPENDIX**

None.